

# Botanical Surveys of Lost Lake and Knops Pond

## Groton, Massachusetts. Final Survey.



Photo of marshy cove taken from north of town beach

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## Acknowledgements

Like to thank Brad Harper of The Groton Weed Harvester Committee for providing a canoe for conducting the plant surveys. DR. Paul Somers of Ashburnham, MA for assisting in the plant surveys, and Anthony Gola of Windsor, MA for also participating in the surveys. Bryan A. Connolly State Botanist for The Massachusetts Natural Heritage & Endangered Species Program for assisting in the surveys and Dr. Barrie Helquist of Adams, Massachusetts for reviewing the specimens of Bur-reed collected in Knops Pond on the last day of the plant surveys by Bryan A. Connolly October 7<sup>th</sup> 2011.

## Executive Summary

At the request of Brad Harper of The Groton Weed Harvester Committee, botanical Surveys of Lost Lake , Knops Pond and Springy Cove were conducted during the late summer and early fall of 2011. Surveys began July 19<sup>th</sup>-October /7 /2011. Lost Lake And Knops Pond are located just north of Rte. 225 and Rte. 119 in Groton, Massachusetts. Both Lost Lake and Knops Pond contain some 204 acres of shallow waters. Depths range from an average of ten feet to a maximum depth of around 30 feet.

The objectives of these aquatic surveys were to search for The Small Bur-reed (*Sparganium natans*) state listed as **E=Endangered**. A careful five day search for this rare Bur-reed throughout Lost Lake and Knops Pond including Springy and Red Water Coves yielded positive results. On July 27<sup>th</sup> a total of no less than a hundred plants were observed in Springy cove and the isthmus of a marshy cove just north of The Town Beach in shallow waters. Several other small populations were recorded along the west side of Knops Pond and Lost Lake totaling no less than 20 plants.

## Objectives

As previously mentioned the main objective for conducting the surveys was to search for the targeted species Small Bur-reed. If encountered the species would be fully documented i.e. GPS points along with maps and Element Occurrence Forms would be submitted to The Massachusetts Natural Heritage & Endangered Species Program.

## Methods

Utilizing a canoe the complete shoreline of both bodies of water including Springy and Red Water Coves were carefully scrutinized. The deeper waters were also surveyed, no rakes were used during the surveys, A Nikon Coolpix 4200 was used to photograph aquatics including a Nikon D40 with a Sigma 105 mm macro lens. Several Small Bur-reed were collected for identification purposes by the state Botanist Bryan A. Connolly and sent to Dr. Barrie Helquist for confirmation. All of the surveys were conducted in suitable weather conditions i.e. very little wind and no rain. Visibility was always favorable.

## Discussion

The occurrence of Small Bur-reed was confined to the shallows of both bodies of water including Springy Cove and the isthmus of a marshy cove north of the Town Beach. At Springy Cove the current is fairly fast by the isthmus of the cove and Knops Pond. Prior to the arrival of Hurricane Irene a total of no less than 28 Northern Bur-reed occurred in Springy Cove however On the last day of the surveys only a couple of plants could be found along the shoreline and the isthmus of the swampy cove north of the town beach a total of around 40 + Small Bur-reeds were still present since late July 2011. Several of the Small Bur-reeds close to the swampy cove had their leaves floating on top of the water. In the deeper waters, plants were observed under at least a meter in depth. The smaller populations observed in the deeper waters of Knops Pond and Lost Lake did not exhibit any floating leaves and were located in depths up to two meters. None of The Northern Bur-reeds were observed in the upright position in both Knops Pond, Lost lake and Springy Cove.

## Recommendations

The occurrence of Small Bur-reed in the Lost Lake and Knops Pond bodies of water is not unprecedented. In fact the species has been recorded in the same historical sites (Springy Cove and the isthmus of Knops Pond and the swampy cove north of the town beach in 2004. The Red Water Cove where Small Bur-reed was located in the past has been taken over by invasives such as Fanwort (*Cabomba caroliniana*) and Variable Water-milfoil (*Myriophyllum heterophyllum*). No Small Bur-reed were encountered.

It is recommended that the sites Small Bur-reed occur be monitored and invasive aquatics be controlled by mechanical means. The use of herbicides to control invasives must be done very carefully so as not to pose a negative threat to the species. All procedures to control invasive aquatics must be reviewed by The Massachusetts Natural Heritage & Endangered Species Program.

## Literature Cited

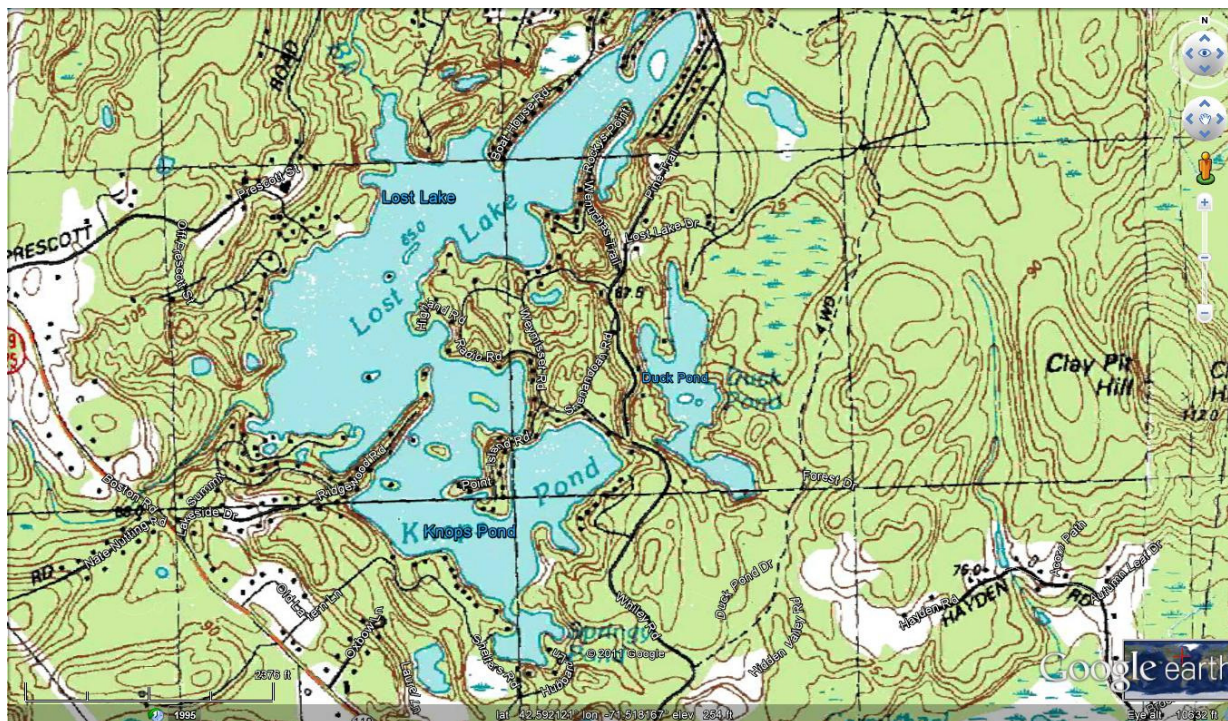
Cullina, Melissa Dow, Connolly, Bryan Sorrie, Bruce Somers, Paul 2011 The Vascular Plants of Massachusetts A County Checklist First Revision. Massachusetts Natural Heritage & Endangered Species Program MA. Division of Fisheries & Wildlife

Fassett, Norman C. 1980 A Manual of Aquatic Plants The University of Wisconsin Press  
Fact Sheet Small Bur-reed ( *Sparganium natans* ) MNHESP Div. of MA. Fisheries & Wildlife.

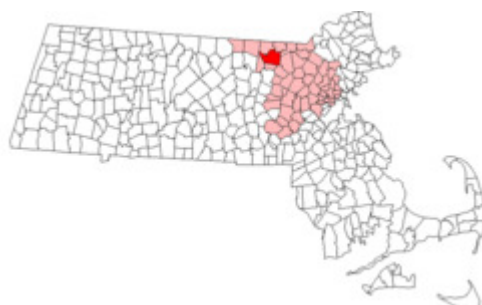
## Plant List.

Coontail ( *Ceratophyllum demersum* )      Quillwort spp. ( *Isoetes spp.* )  
Water Shield ( *Brasenia schreberi* )  
Cabomba ( *Cabomba caroliniana* )  
Yellow Water-lily ( *Nuphar variegata* )  
Naiad spp.  
Fragrant Water-lily ( *Nymphaea odorata* )  
Tuberous Water-lily ( *N. tuberosa* )  
Water Plantain ( *Alisma trivale* )  
Common Arrowhead ( *Sagittaria latifolia* )  
Duckweed ( *Lemna minor* )  
Arrow-arum ( *Peltandra virginica* )  
Sedge spp. ( *Carex spp.* )  
Spike-rush ( *Eleoarchis spp.* )  
Water-weed spp. ( *Elodea spp.* )  
Tape-grass ( *Vallisneria americana* )  
Curly Pondweed ( *Potamogeton crispus* )  
Ribbon –leaf Pondweed ( *P. epihydrus* )  
Robbins Pondweed ( *P. robbinsii* )  
Pondweed sp. ( *Potamogeton spp.* )  
Floating Pondweed ( *P. natans* )  
Green Fruited Bur-reed ( *Sparganium emersum* ) Swampy cove at the point north of Sargisson Beach.  
Small Bur-reed ( *S. natans* )  
Bulbet Water Hemlock ( *Cicuta bulbifera* )  
Water-hemlock ( *Cicuta maculate var. maculata* ) Marsh site north of town beach.  
Variable Water-milfoil ( *Myriophyllum heterophyllum* )  
Water Purslane ( *Ludwigia palustris* )  
Marsh St.Johnswort ( *Triadenum spp.* )  
Humped Bladderwort ( *Utricularia gibba* )  
Purple Bladderwort ( *U. purpurea* )  
Great Bladderwort ( *U. macrorhia* )  
Flat Leaved Bladderwort ( *U. intermedia* )  
Purple Loosestrife ( *Lythrum salicaria* )  
Golden Pert ( *Gratiola aurea* )  
Common Cat-tail ( *Typha latifolia* )  
Najas spp.

## Maps



Topo map of Lost Lake (Groton Pond).



Locus map for town of Groton, Mass. ([http://en.wikipedia.org/wiki/Groton,\\_Massachusetts](http://en.wikipedia.org/wiki/Groton,_Massachusetts))

**Photo**



Photo of Small Bur-reed at the isthmus of Knops pond and Marshy cove. North of town beach.





**Small Bur-reed north of Sargisson Beach.**





Photo taken from point north of Town Beach.